Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) An isolated nucleic acid molecule that encodes a polypeptide having mu3 opiate receptor activity, wherein said polypeptide has higher affinity for morphine than for DAMGO, wherein said polypeptide comprises a human mu1 opioid receptor sequence, and wherein said polypeptide lacks the amino acid sequence set forth in SEQ ID NO:16.

2. (Original) The isolated nucleic acid molecule of claim 1, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence with a length and a percent identity to the sequence set forth in SEQ ID NO:1 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (81, 100), point B has coordinates (81, 65), point C has coordinates (15, 65), and point D has coordinates (15, 100).

3. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said polypeptide comprises an amino acid sequence with a length and a percent identity to the sequence set forth in SEQ ID NO:2 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (26, 100), point B has coordinates (26, 65), point C has coordinates (5, 65), and point D has coordinates (5, 100).

4. (Previously Presented) The isolated nucleic acid molecule of claim 1, wherein said isolated nucleic acid molecule hybridizes under moderately or highly stringent hybridization conditions to the sense or antisense strand of the sequence set forth in SEQ ID NO:1.

5. (Withdrawn) The isolated nucleic acid molecule of claim 1, wherein said isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO:4, 6, 8, or 10.

6. (Currently Amended) An isolated nucleic acid molecule for amplifying nucleic acid encoding a mu3 opiate receptor sequence, wherein said isolated nucleic acid molecule ~~that~~ hybridizes under moderately or highly stringent hybridization conditions to the sense or antisense strand of a nucleic acid that encodes a polypeptide having mu3 opiate receptor activity, wherein said polypeptide has higher affinity for morphine than for DAMGO, wherein said polypeptide comprises a human mu1 opioid receptor sequence, wherein said polypeptide lacks the amino acid sequence set forth in SEQ ID NO:16, wherein said isolated nucleic acid molecule is at least 12 nucleotides in length, and wherein said isolated nucleic acid molecule does not hybridize to the sense or antisense strand of the sequence set forth in SEQ ID NO:12 or 13.

7. (Currently Amended) An isolated nucleic acid molecule for amplifying nucleic acid encoding a mu3 opiate receptor sequence comprising ~~consisting essentially of~~ a nucleic acid sequence with a length and a percent identity to the sequence set forth in SEQ ID NO:1 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (81, 100), point B has coordinates (81, 65), point C has coordinates (15, 65), and point D has coordinates (15, 100).

8. (Cancelled).

9. (Currently Amended) A recombinant cell comprising an isolated nucleic acid molecule that encodes a polypeptide having mu3 opiate receptor activity, wherein said polypeptide has higher affinity for morphine than for DAMGO, wherein said polypeptide comprises a human mu1 opioid receptor sequence, and wherein said polypeptide lacks the amino acid sequence set forth in SEQ ID NO:16.

10. (Original) The cell of claim 9, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence with a length and a percent identity to the sequence set forth in SEQ ID NO:1 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (81, 100), point B has coordinates (81, 65), point C has coordinates (15, 65), and point D has coordinates (15, 100).

11. (Withdrawn) The cell of claim 9, wherein said polypeptide comprises an amino acid sequence with a length and a percent identity to the sequence set forth in SEQ ID NO:2 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (26, 100), point B has coordinates (26, 65), point C has coordinates (5, 65), and point D has coordinates (5, 100).

12. (Previously Presented) The cell of claim 9, wherein said isolated nucleic acid molecule hybridizes under moderately or highly stringent hybridization conditions to the sense or antisense strand of the sequence set forth in SEQ ID NO:1.

13. (Withdrawn) The cell of claim 9, wherein said isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO:4, 6, 8, or 10.

14. (Currently Amended) A recombinant cell comprising an isolated nucleic acid molecule that hybridizes under moderately or highly stringent hybridization conditions to the sense or antisense strand of a nucleic acid that encodes a polypeptide having mu3 opiate receptor activity, wherein said polypeptide has higher affinity for morphine than for DAMGO, wherein said polypeptide comprises a human mu1 opioid receptor sequence, wherein said polypeptide lacks the amino acid sequence set forth in SEQ ID NO:16, wherein said isolated nucleic acid molecule is at least 12 nucleotides in length, and wherein said isolated nucleic acid molecule does not hybridize to the sense or antisense strand of the sequence set forth in SEQ ID NO:12 or 13.

15. (Withdrawn) A substantially pure polypeptide having mu3 opiate receptor activity.

16. (Withdrawn) The substantially pure polypeptide of claim 15, wherein said polypeptide is encoded by a nucleic acid sequence having a length and a percent identity to the sequence set forth in SEQ ID NO:1 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (81, 100), point B has coordinates (81, 65), point C has coordinates (15, 65), and point D has coordinates (15, 100).

17. (Withdrawn) The substantially pure polypeptide of claim 15, wherein said polypeptide comprises an amino acid sequence with a length and a percent identity to the sequence set forth in SEQ ID NO:2 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (26, 100), point B has coordinates (26, 65), point C has coordinates (5, 65), and point D has coordinates (5, 100).

18. (Withdrawn) The substantially pure polypeptide of claim 15, wherein said polypeptide is encoded by a nucleic acid molecule that hybridizes under hybridization conditions to the sense or antisense strand of the sequence set forth in SEQ ID NO:1 or 3.

19. (Withdrawn) The substantially pure polypeptide of claim 15, wherein said polypeptide comprises the sequence set forth in SEQ ID NO:5, 7, 9, or 11.

20. (Withdrawn) A method for identifying a mu3 opiate receptor agonist, said method comprising:

a) contacting a cell with a test molecule, wherein said cell comprises an isolated nucleic acid molecule that encodes a polypeptide having mu3 opiate receptor activity, and wherein said cell expresses said polypeptide, and

b) determining whether or not said test molecule induces, in said cell, a mu3 opiate receptor-mediated response.

21. (Withdrawn) The method of claim 20, wherein said determining step comprises monitoring nitric oxide synthase activity in said cell.

22. (Withdrawn) The method of claim 21, wherein said monitoring nitric oxide synthase activity comprises detecting nitric oxide release from said cell.

23. (Withdrawn) The method of claim 22, wherein a nitric oxide-specific amperometric probe is used to detect said nitric oxide release.

24. (Withdrawn) The method of claim 20, wherein said determining step comprises monitoring intracellular calcium levels within said cell.

25. (Withdrawn) The method of claim 24, wherein a fluorescent ion indicator is used to monitor said intracellular calcium levels.

26. (Withdrawn) The method of claim 25, wherein said fluorescent ion indicator comprises Fura-2.

27. (Withdrawn) The method of claim 20, wherein said determining step comprises monitoring nitric oxide synthase activity and intracellular calcium levels in said cell.

28. (Withdrawn) A method for identifying a mu3 opiate receptor antagonist, said method comprising:

a) contacting a cell with a test molecule and a mu3 opiate receptor agonist, wherein said cell comprises an isolated nucleic acid molecule that encodes a polypeptide having mu3 opiate receptor activity, and wherein said cell expresses said polypeptide, and

b) determining whether or not said test molecule reduces or prevents, in said cell, a mu3 opiate receptor-mediated response induced by said mu3 opiate receptor agonist.

29. (Withdrawn) The method of claim 28, wherein said mu3 opiate receptor agonist comprises morphine or dihydromorphine.

30. (Withdrawn) The method of claim 28, wherein said determining step comprises monitoring nitric oxide synthase activity in said cell.

31. (Withdrawn) The method of claim 28, wherein said determining step comprises monitoring intracellular calcium levels within said cell.

32. (Withdrawn) An isolated nucleic acid molecule comprising a nucleic acid sequence with a length and a percent identity to the sequence set forth in SEQ ID NO:22 over said length, wherein the point defined by said length and said percent identity is within the area defined by points A, B, C, and D of Figure 1, wherein point A has coordinates (225, 100), point B has coordinates (225, 65), point C has coordinates (15, 65), and point D has coordinates (15, 100).